



Montgomery County, Pennsylvania

Protecting, People and Resources

floodplain ordinance - level d

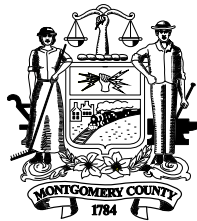
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The Importance of Floodplain Management

Flooding is the most common natural hazard in Montgomery County. Lives have been lost and property destroyed in recent floods. Even the more frequent lesser flooding events cause property damage, close roads, and disrupt people's lives. The public and property can be protected through floodplain management.

Land use planning, achieved through the municipality's zoning ordinance, can direct development away from the floodplain and reduce the threat to residents and property. The Montgomery County Model Floodplain Ordinance is meant to guide municipal efforts to adopt a floodplain ordinance that best manages floodplain activity while complying with FEMA requirements.

Function of the Floodplain

The floodplain is the low-lying land adjacent to the stream that becomes inundated when the stream overflows its banks. Over seven percent of the County's total acreage lies within a floodplain. While this may not appear to be a substantial percentage, the floodplains within the County provide an extremely valuable resource that protects residents' lives and property. The benefits include those shown here.

The floodplain serves the important function of holding floodwaters during storms. When maintained in an undeveloped state, floodplains protect the lives and properties of residents. When

they're not storing floodwaters, preserved floodplains offer opportunities for trails and passive recreation, improving the quality of life in the municipality.

Issues for Properties in the Floodplain

There are three commonly-raised issues pertaining to properties in the floodplain: the cost of insurance, repeat claims, and takings.

1. **Cost of insurance:** A property's location relative to the floodplain influences how a property can be developed, and importantly, how much flood insurance would cost the homeowner. Almost 14,000 acres of Montgomery County containing as many as 2,500 homes, businesses, and other structures are located in the floodplain and therefore are at risk. Standard homeowners insurance does not cover flood damage; FEMA's National Flood Insurance Program is the primary provider of flood damage insurance. The cost of flood insurance varies depending on location on



A floodplain ordinance can help protect resident's lives and property

Benefits of the Floodplain

Convey and store floodwaters during storms

Reduce flood velocities and peak flows

Capture sediment

Promote groundwater recharge

Filter runoff

Maintain water temperatures

Preserve habitat

Encourage recreational opportunities



Structures in the floodplain may be subject to higher insurance premiums



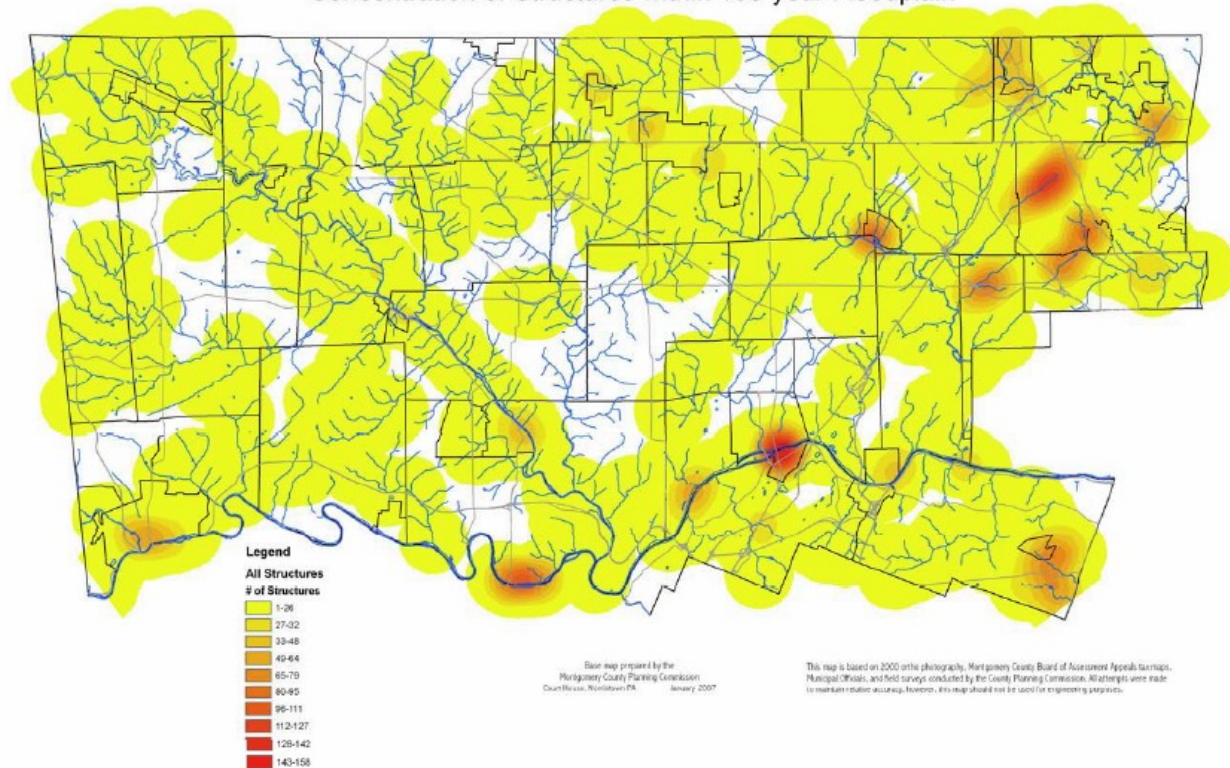
These floodplain properties were purchased, and the houses demolished, after repeated damage from flooding

Estimated Annual Insurance Premiums for Residential and Non-Residential Properties*			
*2010 Data from the NFIP at www.floodsmart.gov . Costs are approximate, for illustration			
Residential Properties			
Moderate to Low Risk Areas		High Risk Areas	
Preferred Risk Policy:		Preferred Risk Policy not available in High Risk Areas	
Coverage	Annual Premium	Coverage	Annual Premium
\$100,000	\$294		
\$250,000	\$395		
Standard Rated Policy:			
Coverage	Annual Premium	Coverage	Annual Premium
\$100,000	\$917	\$100,000	\$1,087
\$250,000	\$1,489	\$250,000	\$2,633
Non-residential Properties			
Moderate to Low Risk Areas		High Risk Areas	
Preferred Risk Policy:		Preferred Risk Policy not available in High Risk Areas	
Coverage	Annual Premium	Coverage	Annual Premium
\$200,000	\$1,437		
\$500,000	\$2,537		
Standard Rated Policy:			
Coverage	Annual Premium	Coverage	Annual Premium
\$200,000	\$2,364	\$200,000	\$3,471
\$500,000	\$4,982	\$500,000	\$11,191

FEMA's Flood Insurance Rate Map. Buildings in the lowest risk zone can pay a premium of \$200 to \$300 per year. The cost will rise depending on the flood zone, past claims, and the property being insured, and could cost several thousand dollars per year.

2. **Repeat claims:** Buildings that are in the floodplain can repeatedly be damaged by flooding. Over 83 million dollars in federal flood insurance payouts have been made in the county since 1978. The Delaware River Basin Commission analyzed data from FEMA's National Flood Insurance Program (NFIP) on completed claims between January 1, 1978 and February 28, 2007. Montgomery County had the second highest number of designated loss properties among counties in the Delaware River basin. The term, designated loss property, includes both *repetitive loss property* (where two or more claims equaling or exceeding 25% of the structure's market value were paid within a ten year period), and *severe repetitive loss properties*, (which are defined as a residential property that is covered under an NFIP flood insurance policy and: (a) has at least four NFIP claim payments (including building and contents) over \$5,000 each, and the cumulative amount of such claims payments exceeds \$20,000; or (b) for which at least two separate claims payments (building payments only) have been made with the cumulative amount of the building portion of such claims exceeding the market value of the building. For both (a) and (b) above, at least two of the referenced claims must have occurred within any ten-year period, and must be greater than 10 days apart). During the time

Montgomery County Flood Mitigation Plan
Concentration of Structures within 100-year Floodplain



period studied, the county had 485 repetitive loss properties with claims exceeding \$54 million dollars, and 90 severe repetitive loss properties with claims exceeding \$18.7 million dollars. Purchase and demolition of such properties has occurred, although it is rare, costly, and difficult. It is far easier to preclude such development in the first place.

3. **Takings:** When land use is regulated, there is always the possibility of someone claiming that the regulation amounts to a "taking" of the land. This is especially true when the regulation precludes development of the property. The

municipality that adopts this model ordinance can expect to avoid reasonable takings claims. It is the municipality's responsibility to regulate floodplain activities. The Legislature of the Commonwealth of Pennsylvania has, by the passage of the Pennsylvania Flood Plain Management Act of 1978, delegated the responsibility to local governmental units to adopt floodplain management regulations to promote public health, safety, and the general welfare of its citizenry. In addition, while this ordinance does prohibit development within the floodplain (and is encouraged to do so by FEMA and the State), it also contains



Many of the older boroughs have entire neighborhoods within the floodplain

Over 83 million dollars in federal flood insurance payouts have been made in the county since 1978.

provisions whereby a landowner can apply for a variance from the regulations. The ordinance also contains development and design requirements that apply where a variance is granted, so that the resulting development is flood proofed according to current standards.

Coordination with Existing Programs

In addition to FEMA's efforts, there already exist regulatory tools that help manage stormwater and floodplains. These are already established on the federal, state, or local levels and include:

Act 167, The Stormwater Management Act:

Enacted in 1978, Act 167 requires counties to prepare and adopt watershed-based stormwater management plans, and requires municipalities to adopt and implement ordinances to regulate development consistent with these plans.

MS4: EPA stormwater regulations require National Pollutant Discharge Elimination System (NPDES) permits for stormwater discharges from many municipal separate storm sewer systems (MS4s). Operators of regulated MS4s are required to develop a stormwater management plan (SWMP) that includes measurable goals and to implement needed stormwater management.

Riparian Corridor Management: Riparian Corridor Management is a system that allows for the protection of water resources while still allowing sustainable mixed use of surrounding riparian area. The planning commission has developed a Riparian Corridor Conservation District Model Ordinance for municipal use.

Design Considerations

A good floodplain management system will incorporate responsible regulatory measures with design standards that include proper building techniques and stormwater best management practices. Certain design elements can be employed to provide for development but at the same time avoid impairment of floodplain function. These include:

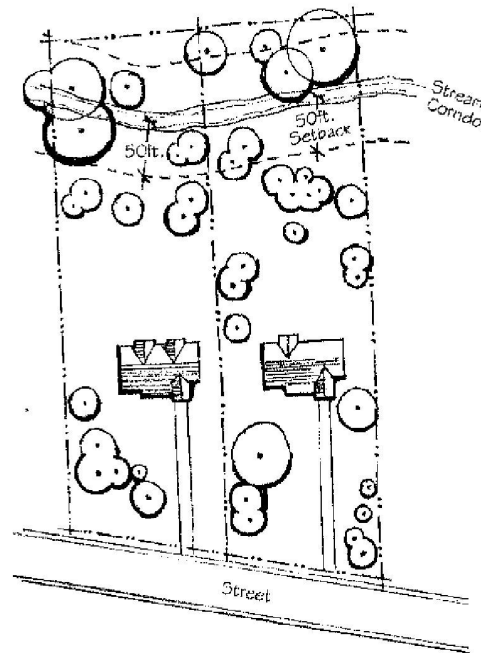
- Lot Requirements in Floodplains:** Lot dimensions required in zoning and subdivision ordinances often result in nearly uniform lots in subdivisions. Flexibility in dimension requirements enables lot layouts that keep structures away from the floodplain. The examples on the next page show how allowing deep front and rear yards and narrow side yards allows homes to be placed out of the floodplain, and gives the lot owner useable yard space. Also demonstrated is how lot averaging can be used to accommodate the floodplain. In lot averaging, some lot sizes are reduced and others are enlarged, but the overall average lot size conforms to zoning requirements.
 - Developable Acreage:** Developable acreage definitions can exclude all or portions of defined areas on a development site. For example, 100% of the floodplain or wetlands, 85% of slopes over 25%, or 50% of existing utility rights-of-way can be excluded. When the total excluded acreage is subtracted from the total site area, the result is the developable acreage. This method allows for development, while keeping structures out of the floodplain.
- Note that a result similar to the developable acreage design element can be achieved by prohibiting development in these sensitive areas, but allowing greater density on the

remainder of the site, so that the allowable density is achieved. This type of provision is the basis of a land preservation or conservation subdivision ordinance.

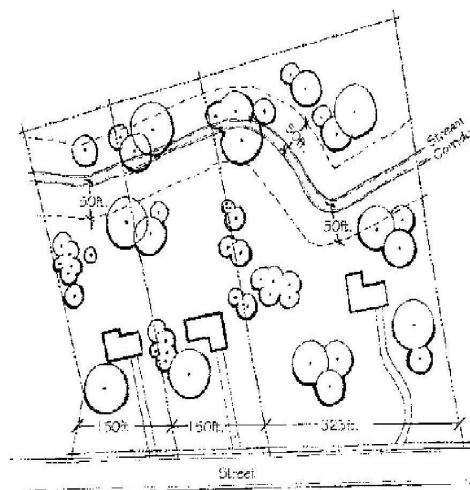
- Improvements to Individual Lots:** Items added to an individual lot over time, such as fencing, sheds, or pools, can cause problems for other properties when they are located in the floodplain. Fencing perpendicular to the floodplain can trap debris and form an obstruction. If not properly secured, sheds can float downstream, and may block culverts. Pools or patios may require grading that results in fill material being placed in the floodplain. All three of these scenarios could increase the height of floodwaters locally, and should be avoided. The example, right, shows how a pool and a shed can be located on a lot, out of the floodplain.
- Public Improvements:** When a municipality or authority is planning a project through or along a floodplain, consideration of the project's impact on flooding should be considered. Earthmoving activities should not result in an obstruction to floodwaters. Trees and other vegetation that can reduce flooding and bank erosion should be preserved. Most importantly, no fill or structures should be placed in the floodplain, or any activity undertaken that could result in an increase in flood height.

Role of FEMA

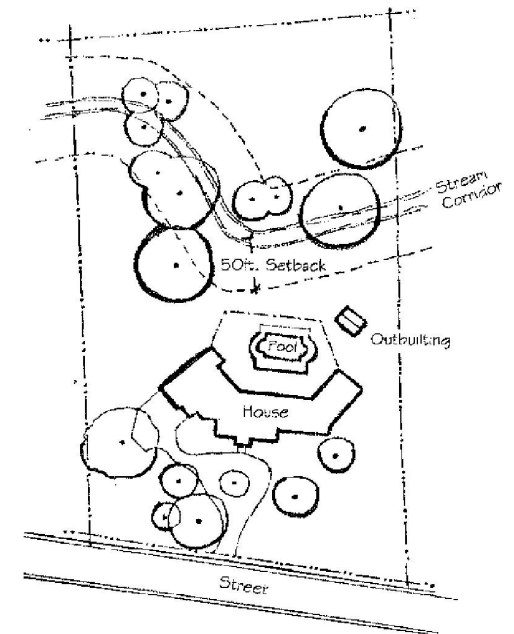
The Federal Emergency Management Agency (FEMA) is the regulatory agency for floodplain management. FEMA manages the National Flood Insurance Program (NFIP), established by the National Flood Insurance Act of 1968. The NFIP



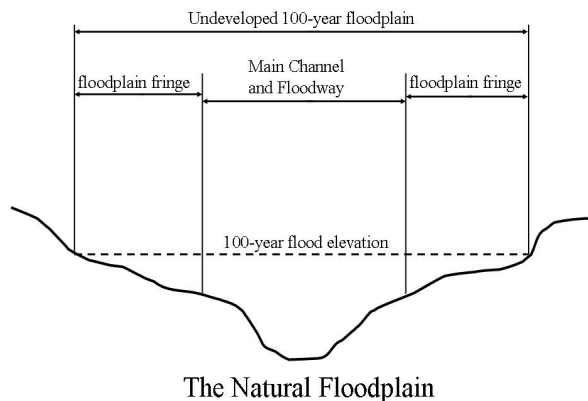
Deep, Narrow Lots



Lot Averaging



Improvements to Property Should be Located Outside the Floodplain



This ordinance provides greater protection to residents and floodplain resources

enables property owners in participating communities to purchase flood insurance, while requiring State and local governments to enforce floodplain management ordinances. As part of the program, FEMA is responsible for producing the Flood Insurance Rate Maps (FIRM).

To understand FEMA's mapping and how a municipality can properly manage a floodplain, it is important to understand four crucial floodplain elements: the floodplain, the floodway, the flood fringe and the Special Flood Hazard Area (SFHA).

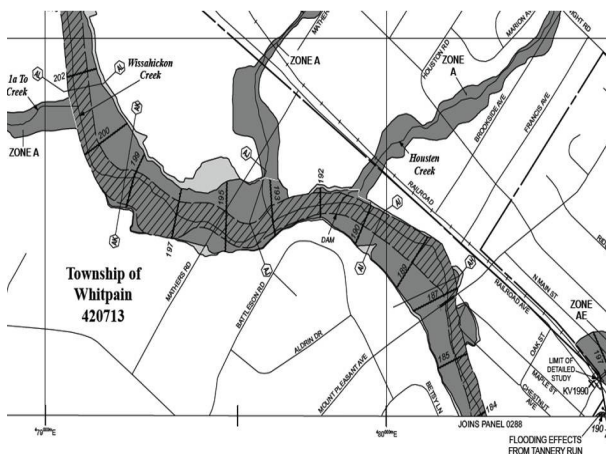
- The **Floodplain area** is a relatively flat or low land area which is subject to partial or complete inundation from an adjoining or nearby stream, river or watercourse; and/or any area subject to the unusual and rapid accumulation of surface waters from any source.
- The **Floodway** is the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.
- The **AE Zone** is the part of the floodplain adjacent to and extending from the floodway and subject to inundation by the 100-year flood. (Formerly referred to as the Floodway Fringe).
- **Special Flood Hazard Area (SFHA)** is FEMA's designation for the 100 year flood boundary. The SFHA is based on NFIP's 1%-annual chance flood, in the past referred to as the 100-year flood, considered to have a "one chance in 100" of occurring in any given year. A 100-year flood may occur more than once in a given year and may occur many times over the course of a few years. FEMA uses hydrological and

engineering calculations to determine the 100-year stream flow for any particular area. It is shown on the FIRM as Zone A, AO, A1-30, AE, A99, or, AH.

The FEMA flood mapping may change over time. As mapping technologies improve and the maps are reviewed some areas may change zones. A primary goal of FEMA's mapping efforts is to designate the Special Flood Hazard Area (SFHA), commonly known as the 100-year floodplain, because this is the key determinant for Flood Insurance. An area may be removed from the Special Flood Hazard Area designation if the latest mapping has found that an area is no longer in the SFHA. Based on specific circumstances, a property owner also has avenues to pursue a SFHA designation change. These avenues each require a specific FEMA process of application, review and determination based on the information provided in the application, possibly information provided by a land surveyor and FEMA's own resources.

[The ordinance, FEMA requirements and the Suggested Provisions from the PA DCED.](#)

This model ordinance complies with FEMA standards, and is coordinated with the FEMA Region III Ordinance Review Checklist. The FEMA Region III Ordinance Review Checklist is a tool that will be used by FEMA to ensure that the municipal ordinance meets all of their requirements. Every municipality's ordinance must contain all the items on the Checklist that pertain to their FEMA designated level. We have included the FEMA Region III Ordinance Review Checklist as Appendix 1 of this document. The rest of this document contains our model floodplain ordinance. Each level



This FIRM shows the hatched floodway and several flood zones

The Special Flood Hazard Area (SFHA) is based on the NFIP's 1%-annual chance flood, in the past referred to as the 100-year flood, considered to have a "one chance in 100" of occurring in any given year. A 100-year flood may occur more than once in a given year and may occur many times over the course of a few years.

of the model ordinance coordinates with the Level of Regulation as defined by FEMA. The levels are determined by the extent of data collected. Those municipalities that are a Level A of Regulation should use the Level A Ordinance, Level B municipalities should use the Level B Ordinance and so forth. If you do not know your Level of Regulation please contact the Montgomery County Planning Commission or Montgomery County Conservation District to obtain this information.

An example has been provided on the following page of how the model ordinance is structured. The ordinance language is the dominant portion of each page. The commentary appears in text boxes and is provided to explain the intent of the ordinance sections. Where Sections of the model ordinance comply with the numbered items on the Ordinance Review Checklist, this has been noted in the ordinance commentary. The PA DCED *Suggested Provisions That Meet The Minimum Requirements Of The National Flood Insurance Program And The Pennsylvania Flood Plain Management Act (1978-166) Section 60.3 (B)* is the foundation of the ordinance. However, PA DCED and FEMA recommend that municipalities consider the suggested provisions to be the minimum level of protection, and encourage municipalities to adopt stronger floodplain protection language. Therefore, the model ordinance contains additional language from the Montgomery County Planning Commission and Montgomery County Conservation District that provides greater protection to residents and floodplain resources. This additional language is noted in the commentary.

Points of Contact

Montgomery County Planning Commission

Drew Shaw, AICP

Environmental Planning Section Chief

dshaw@montcopa.org

(610) 278-3733

FEMA

Nicole P. G. Lick, CFM

Mitigation Planner

Nicole.Lick@dhs.gov

215-931-5625 (office)

267-319-6313 (cell)

215-931-5501 (fax)

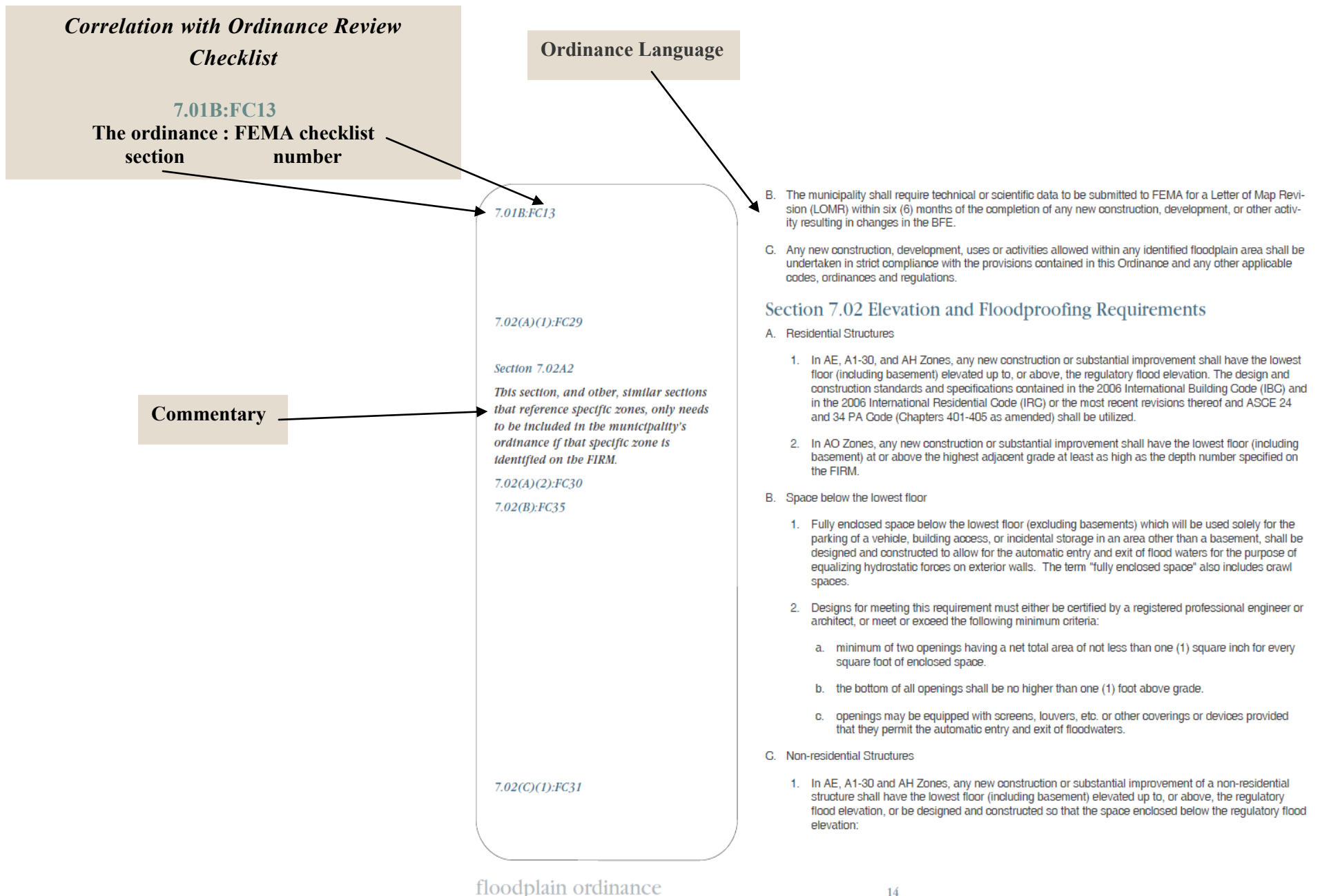
Department of Community and Economic Development

Dan Fitzpatrick

NFIP Coordinator

dafitzpatr@pa.gov

(717) 720-7445



Ordinance Structure

The model ordinance has been developed to comply with FEMA's requirements and minimize the threat to development by flooding, while protecting floodplain resources. As with any model, changes may be necessary to conform to the municipal format. Only minimal changes should be made, so that the ordinance adopted by the municipality satisfies FEMA requirements.

FEMA delineates municipalities into 4 separate ordinance levels (A, B, C, and D), based on the amount of flood data shown on the Flood Insurance Rate Maps. Each level has a greater amount of data than the previous level(s), from Level A (least) to Level D (greatest). A list of municipalities and their corresponding ordinance level is found in the appendix. The municipality should adopt the model

ordinance corresponding to its designated level. The model corresponding to each level is contained in this document.

Articles I, II, and III contain the Statutory Authorization, General Provisions, and Definitions.

Article IV Identification of Floodplain Areas, and Article V Uses Permitted in the Floodplain Conservation District describe the location and extent of the area covered by the ordinance, and the uses permitted and prohibited in the floodplain.

Article VI Variances, and Article VII Technical Provisions in the Event of a Variance Being Granted are necessary because the model prohibits development in the floodplain, but recognizes that there may be rare instances where flood proofed development may be allowable, if built to certain standards.

Article VIII Activities Requiring Special Permits, is required by FEMA, and addresses siting of hospitals, nursing homes, jails/prisons, and manufactured home parks in flood prone areas. These uses typically should not be located in the floodplain, due to the special needs of their populations and the difficulties of evacuation or isolation during flooding. However, in unique circumstances they may be allowed, and this section outlines the permitting procedure and the standards to be met before such a proposal could be considered for permitting.

Article IX Administration, provides for a Floodplain Administrator and outlines the duties of that position.

Article X Enactment, provides the legal date of enactment of the ordinance, a requirement of FEMA.



People enjoy living near water, but care is needed to avoid the hazards of flooding



Floodplain regulation allows floodplains to remain relatively open (left), preserving important flood-holding capacity (right).



model ordinance

Part 2

Part 2 of this publication presents the model ordinance,
with comments and illustrations

Article I Statutory Authorization

The Legislature of the Commonwealth of Pennsylvania has, by the passage of the Pennsylvania Flood Plain Management Act of 1978, delegated the responsibility to local governmental units to adopt floodplain management regulations to promote public health, safety, and the general welfare of its citizenry. Therefore, the [Board, Council, etc.] of the [Name of Municipality], does hereby order as follows.

Article II General Provisions

Section 2.01 Intent

The intent of this Ordinance is to:

- A. Protect areas of the floodplain necessary to contain floodwaters.
- B. To permit only those uses in the floodplain that are compatible with preserving natural conditions and stream flow.
- C. Promote the general health, welfare, and safety of the community by preventing development in areas prone to flooding.
- D. Encourage the utilization of appropriate construction practices in order to prevent or minimize flood damage in the future.
- E. Minimize danger to public health by protecting water supply and natural drainage.
- F. Reduce financial burdens imposed on the community, its governmental units, and its residents, by preventing excessive development in areas subject to flooding.
- G. Comply with federal and state floodplain management requirements.

Section 2.02 Applicability

- A. The Floodplain Conservation District is defined and established as a district applicable to those areas of the [Municipality] subject to inundation by the waters of **the 1% annual chance flood** as delineated on the Flood Insurance Rate Map (FIRM) for Montgomery County, Pennsylvania, as prepared by the Federal Emergency Management Agency, dated [EFFECTIVE MAP DATE] and subsequent revisions thereto. Said floodplain areas shall consist of the following specific areas:
 - 1. (List flood zones as applicable to municipality)
 - 2. Soils with a frequency of flooding of 1% or greater per year, as delineated by the Natural Resources

Article I:FC1

Section 2.01 Intent.

The Intent should be modified to reflect the municipality's own floodplain management goals and policies. For example, to encourage redevelopment along its riverfront, a borough may permit development in the floodplain if it's properly flood proofed. A developing township with sufficient land for development outside the floodplain will want to exclude development from the floodplain, to keep the floodplain open and allow function as it should.

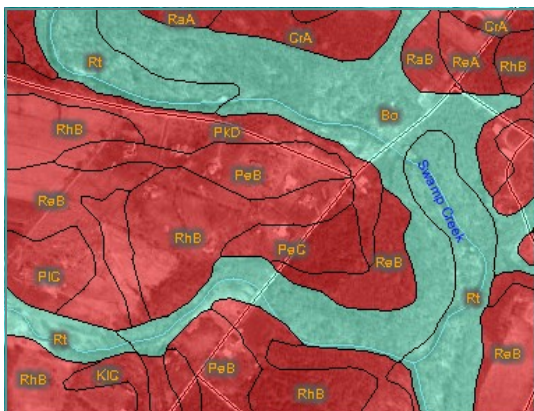
2.01C:FC2

Section 2.02A.1

Flood zones are noted on the Flood Insurance Rate Maps (FIRM) for the municipality. See the appendix for a description of each zone.

Section 2.02A.2

Previous municipal floodplain ordinances may have referenced 'alluvial soils' as part of the floodplain identification section. The newly revised NRCS-USDA soils survey does not reference alluvial soils specifically. The soils listed here have a frequency of flooding that makes it appropriate to include them in the floodplain designation.



Soils with a frequency of flooding of 1% or greater per year may correspond to the floodplain

2.03:FC3

2.04:FC9

Conservation Service, United States Department of Agriculture Web-Based Soil Survey (available online at <http://websoilsurvey.nrcs.usda.gov/>), including the following soils:

- a. Bowmansville (Bo)
 - b. Knauers (Bo)
 - c. Gibraltar (Gc)
 - d. Hatboro (Ha)
 - e. Rowland (Rt)
 - f. Rowland (RwA)
 - g. Rowland (RwB)
 - h. Urban Land Occasionally Flooded (UIA)
- B. In lieu of the above, [Name of Municipality] may require the applicant to determine the elevation with hydrologic and hydraulic engineering techniques. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently accepted technical concepts. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough technical review by the Township.
- C. The Floodplain Conservation District shall be delineated according to FEMA's Flood Insurance Rate Map (FIRM) for [Municipality] which is hereby made a part of this article, and additional area based on soils as described in 2.02A.2. The FIRM is available for inspection at the municipal Office.
- D. The Floodplain Conservation District shall be deemed an overlay on any zoning district now or hereafter applicable to any lot.
- E. It shall be unlawful for any person, partnership, business or corporation to undertake, or cause to be undertaken, any construction or development anywhere within the [Name of Municipality] unless a Permit has been obtained from the Floodplain Administrator.
- F. A Permit shall not be required for minor repairs to existing buildings or structures.

Section 2.03 Abrogation and Greater Restrictions

This ordinance supersedes any other conflicting provisions which may be in effect in the Floodplain Conservation District. However, any other ordinance provisions shall remain in full force and effect to the extent that those provisions are more restrictive. If there is any conflict between any of the provisions of this Ordinance, the more restrictive shall apply.

Section 2.04 Severability

If any section, subsection, paragraph, sentence, clause, or phrase of this Ordinance shall be declared invalid for any reason whatsoever, such a decision shall not affect the remaining portions of the Ordinance, which

shall remain in full force and effect, and for this purpose the provisions of this Ordinance are hereby declared to be severable.

Section 2.05 Warning and Disclaimer of Liability

The degree of flood protection sought by the provisions of this Ordinance is considered reasonable for regulatory purposes and is based on acceptable engineering methods of study. Larger floods may occur or flood heights may be increased by man-made or natural causes, such as ice jams and bridge openings restricted by debris. This Ordinance does not imply that areas outside the Floodplain Conservation District, or that land uses permitted within such areas will be free from flooding or flood damages.

This Ordinance shall not create liability on the part of the [Name of Municipality] or any officer or employee thereof for any flood damages that result from reliance on this Ordinance or any administrative decision lawfully made there under.

Article III Definitions

Section 3.01 General

Unless specifically defined below, words and phrases used in this Ordinance shall be interpreted so as to give this Ordinance its most reasonable application.

Section 3.02 Specific Definitions

1. Accessory use or structure – a use or structure on the same lot with, and of a nature customarily incidental and subordinate to, the principal use or structure.
2. Base flood – a flood which has a one percent chance of being equaled or exceeded in any given year (also called the "100-year flood").
3. Base flood elevation (BFE) – the elevation shown on the Flood Insurance Rate Map (FIRM) for Zones AE, AH, A1-30 that indicates the water surface elevation resulting from a flood that has a 1-percent or greater chance of being equaled or exceeded in any given year. The BFE is also shown on the FIS profile, and can be determined for Zone A Floodplains.
4. Basement – any area of the building having its floor below ground level on all sides.
5. Building – a combination of materials to form a permanent structure having walls and a roof. Included shall be all manufactured homes and trailers to be used for human habitation.

Section 2.05 Warning and Disclaimer of Liability.

The floodplain maps merely signify the project's location relative to the FEMA floodplain. They are in no way meant to be indicative of a property's safety from flooding.

2.05:FC10

3.02:FC8

Section 3.02.2 Base Flood.

The term, "100-year flood" is largely absent from this model, as it may encourage the misunderstanding that such a flood occurs only once every 100 years.

3.02.3 Base flood elevation (BFE).

BFEs are rounded to the whole number on the FIRM and for floodplain management purposes. BFEs must be determined to the tenth of a foot which requires using the flood insurance study profile or for Zone A one of the simplified or detailed methods of determining a BFE.

3.02.6 Development.

Note that the definition for development includes more than just construction of new buildings. Grading, paving, placement of fill, and subdivision, among other activities, are included in the definition.

3.02.7.17 Freeboard

"Freeboard" tends to compensate for the many unknown factors that could contribute to flood heights greater than the height calculated for a selected size flood and floodway conditions, such as the hydrological effect of urbanization of the watershed. Freeboard is not required by NFIP standards, but municipalities are encouraged to adopt at least a one-foot freeboard to account for the one-foot rise built into the concept of designating a floodway and the encroachment requirements where floodways have not been designated. Freeboard results in significantly lower flood insurance rates due to lower flood risk. The definition for Regulatory Flood Elevations references freeboard. The same definition also has a space for the municipality to specify a specific amount, such as one foot, or one and a half feet.

6. Development – any man-made change to improved or unimproved real estate, including but not limited to subdivision of land; construction, reconstruction, renovation, repair, expansion, or alteration of buildings or other structures; the placement of manufactured homes; streets and other paving; utilities; fill; grading and excavation; mining; dredging; drilling operations; or storage of equipment or materials.
7. Existing manufactured home park or subdivision – a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including, at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed before the effective date of the floodplain management regulations adopted by a community.
8. Expansion to an existing manufactured home park or subdivision – the preparation of additional sites by the construction of facilities for servicing the lots on which the manufacturing homes are to be affixed (including the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads).
9. Flood – a temporary inundation of normally dry land areas.
10. Flood Insurance Rate Map (FIRM) – the official map on which the Federal Emergency Management Agency has delineated both the areas of special flood hazards and the risk premium zones applicable to the community.
11. Flood Insurance Study (FIS) – the official report provided by the Federal Insurance Administration that includes flood profiles, the Flood Insurance Rate Map, the Flood Boundary and Floodway Map, and the water surface elevation of the base flood.
12. Floodplain area – a relatively flat or low land area which is subject to partial or complete inundation from an adjoining or nearby stream, river or watercourse; and/or any area subject to the unusual and rapid accumulation of surface waters from any source.
13. Floodproofing – any combination of structural and nonstructural additions, changes, or adjustments to structures which reduce or eliminate flood damage to real estate or improved real property, water and sanitary facilities, structures and their contents.
14. Floodway – the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than one foot.
15. Floodway Fringe – That part of the floodplain adjacent to and extending from the floodway and subject to inundation by the 100-year flood.
16. Freeboard – A factor of safety usually expressed in feet above a flood level for purposes of floodplain management.
18. Highest Adjacent Grade: The highest natural elevation of the ground surface prior to construction next to the proposed walls of a structure.

19. Historic structures – any structure that is:

- a. Listed individually in the National Register of Historic Places (a listing maintained by the Department of Interior) or preliminarily determined by the Pennsylvania Historical and Museum Commission (PHMC) as meeting the criteria for individual listing on the National Register;
 - b. Certified or preliminarily determined by the Pennsylvania Historical and Museum Commission (PHMC) as contributing to the historical significance of a National Register historic district or a district preliminarily determined by the PHMC to be eligible to qualify for listing in the National Register, or;
 - c. Designated as historic by a municipal ordinance:
 - i. Identified individually or as part of a local historic district by a zoning ordinance under the authority of the Pennsylvania Municipalities Planning Code or
 - ii. Located in a local historic district that has been certified by the Pennsylvania Historical and Museum Commission as meeting the requirements of the Pennsylvania Historic District Act.
20. Lowest floor – the lowest floor of the lowest fully enclosed area (including basement). An unfinished, flood resistant partially enclosed area, used solely for parking of vehicles, building access, and incidental storage, in an area other than a basement area is not considered the lowest floor of a building, provided that such space is not designed and built so that the structure is in violation of the applicable non-elevation design requirements of this ordinance.
21. Manufactured home – a structure, transportable in one or more sections, which is built on a permanent chassis, and is designed for use with or without a permanent foundation when attached to the required utilities. The term includes park trailers, travel trailers, recreational and other similar vehicles which are placed on a site for more than 180 consecutive days.
22. Manufactured home park or subdivision – a parcel (or contiguous parcels) of land divided into two or more manufactured home lots for rent or sale.
23. Minor repair – the replacement of existing work with equivalent materials for the purpose of its routine maintenance and upkeep, but not including the cutting away of any wall, partition or portion thereof, the removal or cutting of any structural beam or bearing support, or the removal or change of any required means of egress, or rearrangement of parts of a structure affecting the exitway requirements; nor shall minor repairs include addition to, alteration of, replacement or relocation of any standpipe, water supply, sewer, drainage, drain leader, gas, oil, waste, vent, or similar piping, electric wiring or mechanical or other work affecting public health or general safety.
24. **New construction - structures for which the start of construction commenced on or after the effective start date of this floodplain management ordinance and includes any subsequent improvements to such structures. Any construction started after [effective date of community's first floodplain management ordinance adopted by the community] and before the effective start date of this floodplain management ordinance is subject to the ordinance in effect at the time the permit was issued, provided the start of construction was within 180 days of permit issuance.**



Historic Structures can be affected by flooding

3.02.23. Minor repair

Because the ordinance contains provisions whereby a grandfathered structure can become regulated by this ordinance based on the level of improvement or repairs made, it is necessary to define what constitutes a minor repair.

3.02.32. Regulatory flood elevation

The municipality should insert its own freeboard requirements in this definition. One and one-half (1 ½) foot freeboard is an alternative to the NFIP requirement of one foot that is suggested in the FEMA language. Any reference to freeboard must indicate a specific amount, such as one foot, or one-and-a-half feet. MUNICIPALITIES NOTE: there is a blank space in the definition where the municipality needs to identify how many feet its freeboard is.

3.02.33. Repetitive Loss

Determination of repetitive loss. Include this definition when optional provisions for repetitive loss (Sections 5.04 F and 9.03G) are used. See also the definitions for 'Substantial damage' and 'Substantial improvement'.

3.02.34 Special permit

The special permit process is an added layer of protection. The land uses mentioned are either especially susceptible to flood damage due to construction, or present significant difficulties for continued operation or evacuation in the event of flooding. The special permit is addressed in Article VIII.

25. New manufactured home park or subdivision – a manufactured home park or subdivision for which the construction of facilities for servicing the lots on which the manufactured homes are to be affixed (including at a minimum, the installation of utilities, the construction of streets, and either final site grading or the pouring of concrete pads) is completed on or after the effective date of floodplain management regulations adopted by a community.
26. One hundred-year flood – The flood having a 1% chance of being equaled or exceeded in any given year. Also referred to as the '1% frequency flood', or the 'Base Flood', as defined by FEMA in the Flood Insurance Study for [Municipality].
27. Person – an individual, partnership, public or private association or corporation, firm, trust, estate, municipality, governmental unit, public utility or any other legal entity whatsoever, which is recognized by law as the subject of rights and duties.
28. Post-FIRM Structure – A structure for which construction or substantial improvement occurred after 12/31/1974, or on or after the community's initial FIRM dated (MM/DD/YYYY), whichever is later, and, as such would be required to be compliant with the regulations of the NFIP.
29. Pre-Firm Structure – A structure for which construction or substantial improvement occurred on or before 12/31/1974, or before the community's initial FIRM dated (MM/DD/YYYY), and, as such would not be required to be compliant with the regulations of the NFIP.
30. Recreational vehicle – a vehicle which is
 - a. built on a single chassis;
 - b. not more than 400 square feet, measured at the largest horizontal projections;
 - c. designed to be self-propelled or permanently towable by a light-duty truck,
 - d. not designed for use as a permanent dwelling but as temporary living quarters for recreational, camping, travel, or seasonal use.
31. Redevelopment Area – A census tract or group of census tracts eligible for the Montgomery County Revitalization Program and identified in the adopted municipal revitalization plan.
32. Regulatory flood elevation – The regulatory flood elevation is the elevation to which development is regulated for purposes of elevation and/or dry floodproofing. It is equal to the base flood elevation (BFE) plus a freeboard of _____ feet.
33. Repetitive loss – flood related damages sustained by a structure on two separate occasions during a 10-year period for which the cost of repairs at the time of each such flood event, on average, equals or exceeds 25 percent of the market value of the structure before the damages occurred.
34. Special permit – a special approval which is required for hospitals, nursing homes, jails, and new manufactured home parks and subdivisions and substantial improvements to such existing parks, when such development is located in all, or a designated portion of a floodplain.
35. Special flood hazard area (SFHA) – means an area in the floodplain subject to a 1 percent or greater

chance of flooding in any given year. It is shown on the FIRM as Zone A, AO, A1-A30, AE, A99, or, AH.

36. Special Floodplain Area – the areas identified as Zone AE in the Flood Insurance Study, where one hundred (100) year flood elevations have been provided, but no floodway has been delineated.
37. Start of construction – includes substantial improvement and other proposed new development and means the date the Permit was issued, provided the actual start of construction, repair, reconstruction, rehabilitation, addition, placement, or other improvement was within 180 days from the date of the permit and shall be completed within 12 months after the date of issuance of the permit unless a time extension is granted, in writing, by the Floodplain Administrator. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of a manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading, and filling; nor does it include the installation of streets and/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. For a substantial improvement, the actual start of construction means the first alteration of any wall, ceiling, floor, or other structural part of a building, whether or not that alteration affects the external dimensions of the building.
38. Structure – a walled and roofed building, including a gas or liquid storage tank that is principally above ground, as well as a manufactured home.
39. Subdivision – the division or redivision of a lot, tract, or parcel of land by any means into two or more lots, tracts, parcels or other divisions of land including changes in existing lot lines for the purpose, whether immediate or future, of lease, partition by the court for distribution to heirs, or devisees, transfer of ownership or building or lot development: Provided, however, that the subdivision by lease of land for agricultural purposes into parcels of more than ten acres, not involving any new street or easement of access or any residential dwelling, shall be exempted.
40. Substantial damage – damage from any cause sustained by a structure whereby the cost of restoring the structure to its before-damaged condition would equal or exceed fifty (50) percent or more of the market value of the structure before the damage occurred.
41. Substantial improvement – Any reconstruction, rehabilitation, addition, or other improvement of a structure, the cost of which equals or exceeds fifty (50) percent of the market value of the structure before the "start of construction" of the improvement. This term includes structures which have incurred "substantial damage (or "repetitive loss" when a repetitive loss provision is used) regardless of the actual repair work performed. The term does not, however include any project for improvement of a structure to correct existing violations of state or local health, sanitary, or safety code specifications which have been identified by the local code enforcement official and which are the minimum necessary to assure safe living conditions. For alteration of historic structures, see 5.04e
42. Uniform Construction Code (UCC) – The statewide building code adopted by The Pennsylvania General Assembly in 1999 applicable to new construction in all municipalities whether administered by the municipality, a third party or the Department of Labor and Industry. Applicable to residential

3.02.40 Substantial Damage and

3.02.41 Substantial Improvement

These two concepts provide a way for existing structures in the floodplain, historic or otherwise, to be brought up to current floodproofing standards.

Section 4.01 Identification

The municipality may include the soils listed in Section 2.02 C in this section, if soils are being used in addition to the FEMA map to designate floodplain.

4.01:FC5, 6 and 7

4.02:FC24



Floodplains offer opportunities for passive recreation

Article IV Identification of Floodplain Areas

Not all sections pertaining to flood zones may be needed by the municipality. In some instances an A, AO, or AH Zone may not appear on the FIRM, in which case this subsection should be omitted. The municipality should check the FIRM

and commercial buildings, The Code adopted The International Residential Code (IRC) and the International Building Code (IBC), by reference, as the construction standard applicable with the State floodplain construction. For coordination purposes, references to the above are made specifically to various sections of the IRC and the IBC.

43. Violation – means the failure of a structure or other development to be fully compliant with the community's flood plain management regulations. A structure or other development without the elevation certificate, other certifications, or other evidence of compliance required in 44 CFR §60.3(b)(5), (c)(4), (c)(10), (d)(3), (e)(2), (e)(4), or (e)(5) is presumed to be in violation until such time as that documentation is provided.

Article IV Identification of Floodplain Areas

Section 4.01 Identification

The Floodplain Conservation District shall be any areas of [Name of Municipality] classified as special flood hazard areas (SFHAs) in the Flood Insurance Study (FIS) and the accompanying Flood Insurance Rate Maps (FIRMs) dated [effective map date] and issued by the Federal Emergency Management Agency (FEMA), or the most recent revision thereof, including all digital data developed as part of the Flood Insurance Study.

The Floodplain Conservation District shall also include areas with soils listed in Section 2.02.C, along with any community identified flood hazard areas.

The above referenced FIS and FIRMs, and any subsequent revisions and amendments are hereby adopted by [Municipality] and declared to be a part of this ordinance.

Section 4.02 Description and Special Requirements of the Floodplain Conservation District

The Floodplain Conservation District shall consist of the following specific areas/districts:

- A. The Floodway Area/District shall be those areas identified as Floodway on the FIRM as well as those floodway areas which have been identified in other available studies or sources of information for those special floodplain areas where no floodway has been identified in the FIS. The floodway represents the channel of a watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation by more than one (1) foot at any point.
 1. Within any floodway area, no encroachments, including fill, new construction, substantial Improvements, or other development shall be permitted unless it has been demonstrated through

hydrologic and hydraulic analysis performed in accordance with standard engineering practice that the proposed encroachment would not result in any increase in flood levels within the community during the occurrence of the base flood discharge.

2. No new construction or development shall be allowed, unless a permit is obtained from the Department of Environmental Protection Regional Office.
- B. The AE Area/District shall be those areas identified as an AE Zone on the FIRM included in the FIS prepared by FEMA for which base flood elevations have been provided.
1. The AE Area adjacent to the floodway shall be those areas identified as an AE Zone on the FIRM included in the FIS prepared by FEMA for which base flood elevations have been provided and a floodway has been delineated.
 2. AE Area without floodway shall be those areas identified as an AE zone on the FIRM included in the FIS prepared by FEMA for which base flood elevations have been provided but no floodway has been determined.
 - i. No permit shall be granted for any construction, development, use, or activity within any AE Area/District without floodway unless it is demonstrated that the cumulative effect of the proposed development would not, together with all other existing and anticipated development, increase the BFE more than one (1) foot at any point.
 - ii. No new construction or development shall be located within the area measured fifty (50) feet landward from the top-of-bank of any watercourse, unless the appropriate permit is obtained from the Department of Environmental Protection Regional Office.
- C. The A Area/District shall be the areas identified as an A Zone on the FIRM included in the FIS prepared by FEMA and for which no one-percent (1%) annual chance flood elevations have been provided. For these areas, elevation and floodway information from other Federal, State, or other acceptable source shall be used when available. Where other acceptable information is not available, the elevation shall be determined by using the elevation of a point on the boundary of the Floodplain Conservation District which is nearest the construction site.
- In lieu of the above, the municipality may require the applicant to determine the elevation with hydrologic and hydraulic engineering techniques. Hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently accepted technical concepts. Studies, analyses, computations, etc., shall be submitted in sufficient detail to allow a thorough technical review by the municipality.
- D. The Shallow Flooding Area/ District shall be those areas identified as Zones AO and AH on the FIRM and

carefully to see which of these flood zones are applicable to the municipality.

If the municipality has not identified any Community Identified Flood Hazard Areas , Section 4.02.c should be omitted.

4.03:FC13



Passive recreation, such as golf courses, can be sited in the floodplain

Section 5.01 Uses Permitted by Right

The uses permitted by right are passive in nature to preserve the floodplain so that floodwaters can be contained and damages due to flooding reduced. Note that some activities may require additional State or Federal permits.

in the FIS. These areas are subject to inundation by 1-percent-annual chance shallow flooding where average depths are between one and three feet. In Zones AO and AH, drainage paths shall be established to guide floodwaters around and away from structures on slopes.

- E. Community Identified Flood Hazard Areas shall be those areas where [Name of Municipality] has identified local flood hazard or ponding areas, as delineated and adopted on a “Local Flood Hazard Map” using best available topographic data and locally derived information such as flood of record, historic high water marks, soils or approximate study methodologies.

Section 4.03 Changes in Identification of Area

The Floodplain Conservation District may be revised or modified by the [Board, Council, etc.] where studies or information provided by a qualified agency or person documents the need for such revision. However, prior to any such change, approval must be obtained from the FEMA. Additionally, as soon as practicable, but not later than six (6) months after the date such information becomes available, a community shall notify FEMA of the changes by submitting technical or scientific data.

Section 4.04 Boundary Disputes

Should a dispute concerning any identified floodplain boundary arise, an initial determination shall be made by the [Municipality] Planning Commission and any party aggrieved by this decision or determination may appeal to the [Board, Council, etc.]. The burden of proof shall be on the appellant.

Section 4.05 Corporate Boundary Changes

Prior to development occurring in areas where annexation or other corporate boundary changes are proposed or have occurred, the community shall review flood hazard data affecting the lands subject to boundary changes. The community shall adopt and enforce floodplain regulations in areas subject to annexation or corporate boundary changes which meet or exceed those in CFR 44 60.3.

Article V Uses Permitted in the Floodplain Conservation District

Section 5.01 Uses Permitted by Right

The following uses are permitted by right in the floodplain Conservation District in compliance with the requirements of this Article:

- A. Up to half of any required yard setback area on an individual residential lot may extend into the Floodplain Conservation District.
- B. Open space uses that are primarily passive in character shall be permitted to extend into the floodplain including:
 - 1. Wildlife sanctuaries, nature preserves, forest preserves, fishing areas, passive areas of public and private parklands, and reforestation.
 - 2. Streambank stabilization.
- C. Forestry operations reviewed by the Montgomery County Conservation District.
- D. The following floodplain crossings are permitted, provided disturbance to any existing woodlands and degradation of water quality are minimized to the greatest extent practicable:
 - 1. Agricultural crossings by farm vehicles and livestock.
 - 2. Driveways serving single family detached dwelling units, roadways, recreational trails, railroads, and utilities.
- E. Agricultural uses conducted in compliance with methods prescribed in the latest version of the Department of Environmental Protection's Erosion and Sediment Pollution Control Manual. In the event that the municipality has a Riparian Corridor Conservation District or similar regulation, the more restrictive regulation shall apply.
- F. Public sewer and/or water lines and public utility transmission lines running along the corridor.
- G. Development of elevated and flood-proofed buildings on brownfield sites in redevelopment areas encouraging economic revitalization, in compliance with Section 9.02.

Section 5.02 Uses Prohibited in the Floodplain Conservation District

Any use or activity not authorized within Section 5.01, herein, shall be prohibited within the Floodplain Conservation District and the following activities and facilities are specifically prohibited, except for as part of a redevelopment project in compliance with Section 5.01 G herein:

- A. No new construction, alteration, or improvement of buildings and any other type of permanent structure, including fences shall be permitted in the floodway or the 100-year floodplain.
- B. **New construction of buildings or** placement of fill within the 100 year floodplain is prohibited.
- C. No encroachment, alteration, or improvement of any kind shall be made to any watercourse.
- D. Clearing of all existing vegetation, except where such clearing is necessary to prepare land for a use permitted under Section 5.01, herein, and where the effects of these actions are mitigated by re-establishment of vegetation.

Section 5.01G

If the municipality does not have a designated redevelopment area, Section 5.01G should be deleted, along with the reference to this section in Section 5.02.

Section 5.02 Uses Prohibited in the Floodplain Conservation District

New construction and the other activities listed are prohibited in the floodplain. Preserving the floodplain in its natural state reduces damage from flooding. Many small encroachments can have a cumulative affect similar to large intrusions. Therefore all such activities are prohibited. A variance process allows for limited development when certain standards are met.

If the municipality decides to allow some or all of the uses prohibited in this model, it must be sure to reference the development standards now contained in the variance section over to the permitted use section.

Section 5.04 Improvements to Existing Structures in the Floodplain Conservation District

C. Any allowed expansion should occur on the side of the structure facing away from the floodplain, or in a direction that is more or less parallel to the stream. Expansion toward the floodplain should not be permitted, as it may result in greater damages from flooding.

D. through F. The opportunity to bring an existing structure up to code presents itself when the proposed activities represent 50% or more of the property value. The municipality should then require floodproofing as a part of the permit conditions for these projects.

To address the unique needs of “historic structures, municipalities may exclude historic structures by definition. Damage and improvement of historical structures can also be addressed through the variance process. Relying on the variance option gives more control over what floodplain safety methods are incorporated into the design.

5.04A:FC40

- E. Use of fertilizers, pesticides, herbicides, and/or other chemicals in excess of prescribed industry standards.
- F. Roads or driveways, except where permitted as corridor crossings in compliance with Section 5.01, herein.
- G. Motor or wheeled vehicle traffic in any area not designed to accommodate adequately the type and volume.
- H. Parking lots.
- I. Subsurface sewage disposal areas.
- J. Sod farming.
- K. Stormwater basins, including necessary berms and outfall facilities.

Section 5.03 Nonconforming Structures and Uses in the Floodplain District

The provisions of this Ordinance do not require any changes or improvements to be made to lawfully existing structures. However, when an improvement is made to any existing structure, the provisions of Section 5.04 of this ordinance, and (reference Municipal Ordinance Non-conforming Use standards here) shall apply.

Section 5.04 Improvements to Existing Structures in the Floodplain Conservation District

The following provisions shall apply whenever any improvement is made to an existing structure located within any Floodplain Conservation District:

- A. No expansion or enlargement of an existing structure shall be allowed within any floodway area that would cause any increase in the elevation of the base flood elevation.
- B. No expansion or enlargement of an existing structure shall be allowed within any AE Area/District with floodway, as defined in Section 4.02 B, that would, together with all other existing and anticipated development, increase the BFE more than one (1) foot at any point.
- C. No expansion or enlargement of an existing structure shall be undertaken in the direction of the streambank.
- D. Any modification, alteration, reconstruction, or improvement, of any kind to an existing structure, to an extent or amount of fifty (50) percent or more of its market value, shall constitute a substantial improvement and shall be undertaken only in full compliance with the provisions of this Ordinance.

- E. Historic structures undergoing repair or rehabilitation that would constitute a substantial improvement as defined in this ordinance must comply with all ordinance requirements that do not preclude the structure's continued designation as an historic structure. Documentation that a specific ordinance requirement will cause removal of the structure from the National Register of Historic Places or the State Inventory of Historic Places must be obtained from the Secretary of the Interior or the State Historic Preservation Officer. Any exemption from the ordinance requirements will be the minimum necessary to preserve the historic character and design of the structure.
- F. The above activity shall also address the requirements of the 34 PA Code, as amended and the 2009 IBC and the 2009 IRC.
- G. Any modification, alteration, reconstruction, or improvement of any kind that meets the definition of "repetitive loss" shall be undertaken only in full compliance with the provisions of this ordinance.

Article VI Variances

Section 6.01 General

If compliance with any of the requirements of this Ordinance would result in an exceptional hardship to a prospective builder, developer or landowner, the [Name of Municipality] may, upon request, grant relief from the strict application of the requirements.

Section 6.02 Variance Procedures and Conditions

- A. For a use other than those permitted in Article V, an application seeking approval by variance shall be forwarded to the Zoning Hearing Board along with required studies or information and the findings of the Zoning Officer.
- B. No variance shall be granted for any construction, development, use, or activity within any floodway area that would cause any increase in the BFE.
- C. No variance shall be granted for any construction, development, use, or activity within any AE Area/District without floodway that would, together with all other existing and anticipated development, increase the BFE more than one (1) foot at any point.
- D. No variance shall be granted for any of the other requirements pertaining specifically to development regulated by Section 8.04 (pertaining to special technical requirements for activities requiring a Special Permit) or to Development Which May Endanger Human Life (Section 7.03.A).

Section 6.03 Special Requirements for Subdivisions

5.04B:FC34

ARTICLE VI VARIANCES

Section 6.01 General

6.02B:FC40

The state model allows for new construction in floodplain areas. This model allows for new construction in the floodplain through the variance process.

The variance option is provided in recognition of property owner's rights, and the possibility of challenges against a too restrictive ordinance. However, the prohibition of new construction, fill, and other similar activities is meant to reduce the threat that flooding represents to residents and property. Numerous small incursions into the floodplain can have a cumulative affect, resulting in flooding downstream. Therefore, a variance should only be granted when the provisions of Section 6 are satisfied.



Manufactured homes and recreational vehicles have special requirements

6.03FC27

6.04:FC28, FC37, FC38

6.05:FC39

All subdivision proposals and development proposals containing at least 50 lots or at least 5 acres, whichever is the lesser, in flood hazard areas where base flood elevation data are not available, shall be supported by hydrologic and hydraulic engineering analyses that determine base flood elevations and floodway information. The analyses shall be prepared by a licensed professional engineer in a format required by FEMA for a Conditional Letter of Map Revision or Letter of Map Revision.

Section 6.04 Special Requirements for Manufactured Homes

- A. Within the Floodplain Conservation District, manufactured homes shall be prohibited within the area measured fifty (50) feet landward from the top-of-bank of any watercourse.
- B. Where permitted by variance within the Floodplain Conservation District, all manufactured homes, and any improvements thereto, shall be:
 1. placed on a permanent foundation.
 2. elevated so that the lowest floor of the manufactured home is at least one and one half (1 ½) feet above the Base Flood Elevation.
 3. anchored to resist flotation, collapse, or lateral movement.
 4. have all ductwork and utilities including HVAC/heat pump elevated to the Regulatory Flood Elevation.
- C. Installation of manufactured homes shall be done in accordance with the manufacturers' installation instructions as provided by the manufacturer. Where the applicant cannot provide the above information, the requirements of Appendix E of the 2009 International Residential Building Code or the U.S. Department of Housing and Urban Development's Permanent Foundations for Manufactured Housing, 1984 Edition, draft or latest revision thereto shall apply and 34 PA Code Chapter 401-405.
- D. Consideration shall be given to the installation requirements of the 2009 IBC, and the 2009 IRC or the most recent revisions thereto and 34 PA Code, as amended where appropriate and/or applicable to units where the manufacturers' standards for anchoring cannot be provided or were not established for the proposed installation.

Section 6.05 Special Requirements for Recreational Vehicles

- A. Recreational vehicles in Zones A1-30, AH and AE must either
 1. be on the site for fewer than 180 consecutive days, and
 2. be fully licensed and ready for highway use, or
 3. meet the permit requirements for manufactured homes in Section 6.04.

Section 6.06 Variance Conditions

- A. If granted, a variance shall involve only the least modification necessary to provide relief.

- B. In granting any variance, the Zoning Hearing Board shall attach the reasonable conditions and safeguards outlined herein. These conditions and safeguards are necessary in order to protect the public health, safety, and welfare of the residents of the municipality.
- C. Whenever a variance is granted, the Zoning Hearing Board shall notify the applicant in writing that:
1. The granting of the variance may result in increased premium rates for flood insurance.
 2. Such variances may increase the risks to life and property.
- D. In reviewing any request for a variance, the Zoning Hearing Board shall consider, at a minimum, the following:
1. That there is good and sufficient cause, including:
 - a. That there are unique physical circumstances or conditions, including irregularity, narrowness, or shallowness of lot size or shape, or exceptional topographical or other physical conditions peculiar to the particular property and that the unnecessary hardship is due to such conditions and not the circumstances or conditions generally created by the provisions of the zoning ordinance in the neighborhood or district in which the property is located.
 - b. That because of such physical circumstances or conditions, there is no possibility that the property can be developed in strict conformity with the provisions of the zoning ordinance and that the authorization of a variance is therefore necessary to enable the reasonable use of the property.
 - c. That such unnecessary hardship has not been created by the appellant.
 - d. That the variance, if authorized, will not alter the essential character of the neighborhood or district in which the property is located, nor substantially or permanently impair the appropriate use or development of adjacent property, nor be detrimental to the public welfare.
 2. That failure to grant the variance would result in exceptional hardship to the applicant.
 3. That the granting of the variance will:
 - a. neither result in an unacceptable or prohibited increase in flood heights, additional threats to public safety, or extraordinary public expense,
 - b. nor create nuisances, cause fraud on, or victimize the public, or conflict with any other applicable state or local ordinances and regulations.
- E. A complete record of all variance requests and related actions shall be maintained by the [Name of Municipality]. In addition, a report of all variances granted during the year shall be included in the biennial report to FEMA.

Section 7.01 General

FEMA requires that the data pertaining to the alteration or relocation of a watercourse be sent to its offices so that FEMA can be kept aware of all changes to the watercourses and their associated floodplain.

Article VII Technical Provisions in the Event

of a Variance Being Granted

Section 7.01 General

In granting any variance, the [Name of Municipality] shall attach the following technical provisions to the proposal for which the variance has been granted. These conditions and safeguards are necessary in order to protect the public health, safety, and welfare of the residents of the municipality.

A. Pertaining To The Alteration or Relocation of Watercourse

1. No encroachment, alteration, or improvement of any kind shall be made to any watercourse until all adjacent municipalities which may be affected by such action have been notified by the municipality, and until all required permits or approvals have been first obtained from the Department of Environmental Protection Regional Office.
2. No encroachment, alteration, or improvement of any kind shall be made to any watercourse unless it can be shown that the activity will not reduce or impede the flood carrying capacity of the watercourse in any way.
3. In addition, the FEMA and Pennsylvania Department of Community and Economic Development, shall be notified prior to any alteration or relocation of any watercourse.

B. The municipality shall require technical or scientific data to be submitted to FEMA for a Letter of Map Revision (LOMR) within six (6) months of the completion of any new construction, development, or other activity resulting in changes in the BFE. A LOMR or Conditional Letter of Map Revision (CLOMR) is required for:

1. Any development that causes a rise in the base flood elevations within the floodway; or
2. Any development occurring in Zones A1-30 and Zone AE without a designated floodway, which will cause a rise of more than one foot in the base flood elevation; or
3. Alteration or relocation of a stream (including but not limited to installing culverts and bridges).

C. Any new construction, development, uses or activities allowed by variance within any Floodplain Conservation District shall be undertaken in strict compliance with the provisions contained in this Ordinance and any other applicable codes, ordinances and regulations. In addition, when such development is proposed within the area measured fifty (50) feet landward from the top of bank of any watercourse, a permit shall be obtained from the Department of Environmental Protection Regional Office.

Section 7.02 Elevation and Floodproofing Requirements

A. Residential Structures

1. In AE, A1-30, and AH Zones, any new construction or substantial improvement shall have the lowest

7.01A.1,3:FC25

7.01A.2:FC26

7.01B:FC13

Section 7.02 Elevation and Floodproofing Requirements

This section, and other, similar sections that reference specific zones, only needs to be included in the municipality's ordinance if that specific zone is identified on the FIRM.

7.02A1:FC29

floor (including basement) elevated up to, or above, the regulatory flood elevation. The design and construction standards and specifications contained in the 2009 International Building Code (IBC) and in the 2009 International Residential Code (IRC) or the most recent revisions thereof and ASCE 24 and 34 PA Code (Chapters 401-405 as amended) shall be used.

2. In A Zones, where there are no Base Flood Elevations specified on the FIRM, any new construction or substantial improvement shall have the lowest floor (including basement) elevated up to, or above, the regulatory flood elevation determined in accordance with Subsection 4.02 C of this ordinance.
3. In AO Zones, any new construction or substantial improvement shall have the lowest floor (including basement) at or above the highest adjacent grade at least as high as the depth number specified on the FIRM.
4. The design and construction standards and specifications contained in the 2009 International Building Code (IBC) and in the 2009 International Residential Code (IRC) or the most recent revisions thereof and ASCE 24 and 34 PA Code (Chapters 401-405 as amended) shall be utilized.

B. Non-residential Structures

1. In AE, A1-30 and AH Zones, any new construction or substantial improvement of a non-residential structure shall have the lowest floor (including basement) elevated up to, or above, the regulatory flood elevation, or be designed and constructed so that the space enclosed below the regulatory flood elevation:
 - a. is floodproofed so that the structure is watertight with walls substantially impermeable to the passage of water and,
 - b. has structural components with the capability of resisting hydrostatic and hydrodynamic loads and effects of buoyancy.
2. In A Zones, where there no Base Flood Elevations are specified on the FIRM, any new construction or substantial improvement shall have the lowest floor (including basement) elevated or completely floodproofed up to, or above, the regulatory flood elevation determined in accordance with Subsection 4.02 D of this ordinance.
3. In AO Zones, any new construction or substantial improvement shall have their lowest floor elevated or completely floodproofed above the highest adjacent grade to at least as high as the depth number specified on the FIRM.
4. Any non-residential structure, or part thereof, made watertight below the regulatory flood elevation shall be floodproofed in accordance with the WI or W2 space classification standards contained in the publication entitled "Flood-Proofing Regulations" published by the U.S. Army Corps of Engineers (June 1972, as amended March 1992) or with some other equivalent standard. All plans and specifications for such floodproofing shall be accompanied by a statement certified by a registered professional engineer or architect which states that the proposed design and methods of construction are in conformance with the above referenced standards.

7.02A2:FC30

7.02B:FC31

Section 7.02.A1, and 7.02.A2 In place of "up to, or above" and "at least as high as" the municipality can specify a specific height, such as 1 and 1/2 feet. For example, in Section 7.02.1 the municipality could require any new construction or substantial improvement to have the lowest floor (including basement) elevated to one and one half feet above the regulatory flood elevation.

7.02C.1:FC31



Sheds and garages should be kept out of the floodplain to avoid damage. If they cannot be located outside the floodplain, they need to be adequately anchored to prevent flotation

5. The design and construction standards and specifications contained in the 2009 International Building Code (IBC) and in the 2009 International Residential Code (IRC) or the most recent revisions thereof and ASCE 24 and 34 PA Code (Chapters 401-405 as amended) shall be used.

C. Space below the lowest floor

1. Fully enclosed space below the lowest floor (excluding basements) which will be used solely for the parking of a vehicle, building access, or incidental storage in an area other than a basement, shall be designed and constructed to allow for the automatic entry and exit of flood waters for the purpose of equalizing hydrostatic forces on exterior walls. The term "fully enclosed space" also includes crawl spaces.
2. Designs for meeting this requirement must either be certified by a registered professional engineer or architect, or meet or exceed the following minimum criteria:
 - a. minimum of two openings having a net total area of not less than one (1) square inch for every square foot of enclosed space.
 - b. the bottom of all openings shall be no higher than one (1) foot above grade.
 - c. openings may be equipped with screens, louvers, etc. or other coverings or devices provided that they permit the automatic entry and exit of floodwaters.

D. Accessory structures

1. Structures accessory to a principal building need not be elevated or floodproofed to remain dry, but shall comply, at a minimum, with the following requirements:
 - a. the structure shall not be designed or used for human habitation, but shall be limited to the parking of vehicles, or to the storage of tools, material, and equipment related to the principal use or activity.
 - b. floor area shall not exceed 100 square feet.
 - c. The structure will have a low damage potential.
 - d. the structure will be located on the site so as to cause the least obstruction to the flow of flood waters.
 - e. power lines, wiring, and outlets will be elevated to the regulatory flood elevation.
 - f. permanently affixed utility equipment and appliances such as furnaces, heaters, washers, dryers, etc. are prohibited.
 - g. sanitary facilities are prohibited.
 - h. the structure shall be adequately anchored to prevent flotation or movement and shall be designed to automatically provide for the entry and exit of floodwater for the purpose of

equalizing hydrostatic forces on the walls. Designs for meeting this requirement must either be certified by a registered professional engineer or architect, or meet or exceed the following minimum criteria:

1. a minimum of two openings having a net total area of not less than one (1) square inch for every square foot of enclosed space.
2. the bottom of all openings shall be no higher than one (1) foot above grade.
3. openings may be equipped with screens, louvers, etc. or other coverings or devices provided that they permit the automatic entry and exit of flood waters.

Section 7.03 Special Technical Requirements

A. Development Which May Endanger Human Life

In accordance with the Pennsylvania Flood Plain Management Act, and the regulations adopted by the Department of Community and Economic Development as required by the Act, any *new* or *substantially improved* structure which will be used for the *production* or *storage* of any of the following dangerous materials or substances; or, will be used for any activity requiring the maintenance of a supply of more than 550 gallons, or other comparable volume, of any of the following dangerous materials or substances on the premises; or, will involve the production, storage, or use of any amount of radioactive substances; shall be subject to the provisions of this section, in addition to all other applicable provisions. The following list of materials and substances are considered dangerous to human life:

- Acetone
- Ammonia
- Benzene
- Calcium carbide
- Carbon disulfide
- Celluloid
- Chlorine
- Hydrochloric acid
- Hydrocyanic acid
- Magnesium
- Nitric acid and oxides of nitrogen
- Petroleum products (gasoline, fuel oil, etc.)
- Phosphorus

Section 7.03A Development Which May Endanger Human Life

Because of the harmful and potentially life-threatening qualities of these substances, the structures where they are produced, used and stored must be elevated and flood proofed. This will prevent their release in the event of a flood.

7.03A:FC41



Hazardous materials must be stored where floodwaters will not reach them



Proper regulation of hazardous materials protects water quality



Placement of fill in the floodplain reduces storage capacity and may endanger downstream properties

7.04:FC19

7.04B:FC18c, FC36

7.04C.1,2:FC20

- Potassium
- Sodium
- Sulphur and sulphur products
- Pesticides (including insecticides, fungicides, and rodenticides)
- Radioactive substances, insofar as such substances are not otherwise regulated.

- B. Any structure of the kind described in Subsection A., above, shall be prohibited within any Floodway Area. Where permitted by variance within any Identified Floodplain Area, any new or substantially improved residential structure of the kind described in Section 7.03 (A), above, shall be elevated to remain completely dry up to at least one and one half (1 ½) feet above base flood elevation and built in accordance with Section 7.02.
- C. Within any Identified Floodplain Area, any new or substantially improved structure of the kind described in Section 7.03 (A), above, shall be prohibited within the area measured fifty (50) feet landward from the top-of-bank of any watercourse.
- D. Where permitted by variance within any Identified Floodplain Area, any new or substantially improved non-residential structure of the kind described in Section 7.03 (A) above, shall be built in accordance with Section 7.02 including:
1. elevated, or designed and constructed to remain completely dry up to at least one and one half (1 ½) feet above base flood elevation, and
 2. designed to prevent pollution from the structure or activity during the course of a base flood.
 3. Any such structure, or part thereof, that will be built below the regulatory flood elevation shall be designed and constructed in accordance with the standards for completely dry floodproofing contained in the publication "Flood-Proofing Regulations (U.S. Army Corps of Engineers, June 1972 as amended March 1992), or with some other equivalent watertight standard.

Section 7.04 Design and Construction Standards

The following minimum standards shall apply for all construction and development proposed within any Floodplain Conservation District:

A. Fill

If fill is used, it shall:

1. extend laterally at least fifteen (15) feet beyond the building line from all points;
2. consist of soil or small rock materials only - Sanitary Landfills shall not be permitted;
3. be compacted to provide the necessary permeability and resistance to erosion, scouring, or settling;

4. be no steeper than one (1) vertical to two (2) horizontal, feet unless substantiated data, justifying steeper slopes are submitted to, and approved by the Floodplain Administrator; and
5. be used to the extent to which it does not adversely affect adjacent properties.

B. Drainage Facilities

Storm drainage facilities shall be designed to convey the flow of storm water runoff in a safe and efficient manner. The system shall insure proper drainage along streets, and provide positive drainage away from buildings. The system shall also be designed to prevent the discharge of excess runoff onto adjacent properties.

C. Water and Sanitary Sewer Facilities and Systems

1. All new or replacement water supply and sanitary sewer facilities and systems shall be located, designed and constructed to minimize or eliminate flood damages and the infiltration of flood waters.
2. Sanitary sewer facilities and systems shall be designed to prevent the discharge of untreated sewage into flood waters.
3. No part of any on-site sewage system shall be located within any Floodplain Conservation District except in strict compliance with all State and local regulations for such systems. If any such system is permitted, it shall be located so as to avoid impairment to it, or contamination from it, during a flood.
4. The design and construction provisions of the UCC and FEMA #348, Protecting Building Utilities From Flood Damages and The International Private Sewage Disposal Code shall be utilized.

D. Other Utilities

All other utilities such as gas lines, electrical and telephone systems shall be located, elevated (where possible) and constructed to minimize the chance of impairment during a flood.

E. Streets

The finished elevation of all new streets shall be no more than one (1) foot below the Regulatory Flood Elevation.

F. Storage

All materials that are buoyant, flammable, explosive, or in times of flooding could be injurious to human, animal, or plant life, and not listed in Section 7.03, Development Which May Endanger Human Life, shall be stored at or above the Regulatory Flood Elevation and/or flood proofed to the maximum extent possible.

G. Placement of Buildings and Structures

All buildings and structures shall be designed, located, and constructed so as to offer the minimum obstruction to the flow of water and shall be designed to have a minimum effect upon the flow and height of flood water.

H. Anchoring

1. All buildings and structures shall be firmly anchored in accordance with accepted engineering practices to prevent flotation, collapse, or lateral movement.

7.04C.3:FC21

7.04G:FC19c

7.04H:FC18c

7.04I,J,K,L:FC19b



Due to unique conditions, evacuating hospitals, nursing homes, or prisons during flooding can be challenging

2. All air ducts, large pipes, storage tanks, and other similar objects or components located below the regulatory flood elevation shall be securely anchored or affixed to prevent flotation.

I. Floors, Walls and Ceilings

1. Wood flooring used at or below the Regulatory Flood Elevation shall be installed to accommodate a lateral expansion of the flooring, perpendicular to the flooring grain without causing structural damage to the building.
2. Plywood used at or below the regulatory flood elevation shall be of a "marine" or "water-resistant" variety.
3. Walls and ceilings at or below the regulatory flood elevation shall be designed and constructed of materials that are "water-resistant" and will withstand inundation.
4. Windows, doors, and other components at or below the regulatory flood elevation shall be made of metal or other "water-resistant" material.

J. Paints and Adhesives

1. Paints and other finishes used at or below the regulatory flood elevation shall be of "marine" or "water-resistant" quality.
2. Adhesives used at or below the regulatory flood elevation shall be of a "marine" or "water-resistant" variety.
3. All wooden components (doors, trim, cabinets, etc.) shall be finished with a "marine" or "water-resistant" paint or other finishing material.

K. Electrical Components

1. Electrical distribution panels shall be at least three (3) feet above the base flood elevation.
2. Separate electrical circuits shall serve lower levels and shall be dropped from above.

L. Equipment

1. Water heaters, furnaces, air conditioning and ventilating units, and other electrical, mechanical or utility equipment or apparatus shall not be located below the Regulatory Flood Elevation.

M. Fuel Supply Systems

All gas and oil supply systems shall be designed to prevent the infiltration of flood waters into the system and discharges from the system into flood waters. Additional provisions shall be made for the drainage of these systems in the event that flood water infiltration occurs.

N. Uniform Construction Code Coordination

1. The Standards and Specifications contained 34 PA Code (Chapters 401-405), as amended and not limited to the following provisions shall apply to the above and other sections and sub-sections of this

ordinance, to the extent that they are more restrictive and/or supplement the requirements of this ordinance.

- a. International Building Code (IBC) 2006 or the latest edition thereof: Sections 801, 1202, 1403, 1603, 1605, 1612, 3402, and Appendix G.
- b. International Residential Building Code (IRC) 2006 or the latest edition thereof: Sections R104, R105, R109, R323, Appendix AE101, Appendix E and Appendix J.

Article VIII Activities Requiring Special Permits

Section 8.01 General

In accordance with the administrative regulations promulgated by the Department of Community and Economic Development to implement the Pennsylvania Flood Plain Management Act, the activities indicated in 8.01 A and 8.01 B shall be prohibited within any Floodplain Conservation District unless a Special Permit has been issued by the [Name of Municipality]. In order to apply for a special permit, a variance must first be obtained, as outlined in Article VI.

- A. The commencement of any of the following activities; or the construction enlargement, or expansion of any structure used, or intended to be used, for any of the following activities:
 1. Hospitals
 2. Nursing homes
 3. Jails or prisons
- B. The commencement of, or any construction of, a new manufactured home park or manufactured home subdivision, or substantial improvement to an existing manufactured home park or manufactured home subdivision.

Section 8.02 Application Requirements for Special Permits

Applicants for Special Permits shall provide five copies of the following items:

- A. A written request including a completed Special Permit Application Form.
- B. A small scale map showing the vicinity in which the proposed site is located.
- C. A plan of the entire site, clearly and legibly drawn at a scale of one (1) inch being equal to one hundred (100) feet or less, showing the following:

Section 8.01 General

Hospitals, nursing homes, and jails or prisons represent concentrated populations which may be difficult to evacuate or relocate in times of flooding. For this reason, additional requirements are placed on the applicant when these facilities are proposed in the floodplain. As with any development proposed in the floodplain, these uses must first obtain a variance before applying for a special permit.

8.01A,B:FC42

8.02:FC43

The municipality should note that the Special Permit takes the place of the development permit (Article IX). The requirements of the Special Permit are the same as, or in some cases, more strict, than the requirements of Article IX. The additional requirements of the Special Permit are related to the difficult nature of evacuations or service interruptions that jails, nursing homes, hospitals, and manufactured home parks may experience during floods.



Profile drawings for all proposed streets help determine roads that might be closed during a flood



The main building and access for this hospital have been located outside the floodplain (shown in blue)

1. north arrow, scale and date;
 2. topography based upon the North American Vertical Datum (NAVD) of 1988, showing existing and proposed contours at intervals of two (2) feet;
 3. all property and lot lines including dimensions, and the size of the site expressed in acres or square feet;
 4. the location of all existing streets, drives, other access ways, and parking areas, with information concerning widths, pavement types and construction, and elevations;
 5. the location of any existing bodies of water or watercourses, buildings, structures and other public or private facilities, including railroad tracks and facilities, and any other natural and man-made features affecting, or affected by, the proposed activity or development;
 6. the location of the floodplain boundary line, information and spot elevations concerning the base flood elevation, and information concerning the flow of water including direction and velocities;
 7. the location of all proposed buildings, structures, utilities, and any other improvements; and
 8. any other information which the municipality considers necessary for adequate review of the application.
- D. Plans of all proposed buildings, structures and other improvements, clearly and legibly drawn at suitable scale showing the following:
1. sufficiently detailed architectural or engineering drawings, including floor plans, sections, and exterior building elevations, as appropriate;
 2. for any proposed building, the elevation of the lowest floor (including basement) and, as required, the elevation of any other floor;
 3. complete information concerning flood depths, pressures, velocities, impact and uplift forces, and other factors associated with the base flood elevation;
 4. detailed information concerning any proposed floodproofing measures;
 5. cross section drawings for all proposed streets, drives, other access ways, and parking areas, showing all rights-of-way and pavement widths;
 6. profile drawings for all proposed streets, drives, and vehicular access ways including existing and proposed grades; and
 7. plans and profiles of all proposed sanitary and storm sewer systems, water supply systems, and any other utilities and facilities.
- E. The following data and documentation:

1. certification from the applicant that the site upon which the activity or development is proposed is an existing separate and single parcel, owned by the applicant or the client he represents;
2. certification from a registered professional engineer, architect, or landscape architect that the proposed construction has been adequately designed to protect against damage from the base flood elevation;
3. a statement, certified by a registered professional engineer, architect, landscape architect, or other qualified person which contains a complete and accurate description of the nature and extent of pollution that might possibly occur from the development during the course of a base flood elevation, including a statement concerning the effects such pollution may have on human life;
4. a statement certified by a registered professional engineer, architect, or landscape architect, which contains a complete and accurate description of the effects the proposed development will have on base flood elevation elevations and flows;
5. a statement, certified by a registered professional engineer, architect, or landscape architect, which contains a complete and accurate description of the kinds and amounts of any loose buoyant materials or debris that may possibly exist or be located on the site below the base flood elevation and the effects such materials and debris may have on base flood elevation elevations and flows;
6. the appropriate component of the Department of Environmental Protection's "Planning Module for Land Development;"
7. where any excavation or grading is proposed, a plan meeting the requirements of the Department of Environmental Protection to implement and maintain erosion and sedimentation control;
8. any other applicable permits such as, but not limited to, a permit for any activity regulated by the Department of Environmental Protection under Section 302 of Act 1978-166; and
9. an evacuation plan which fully explains the manner in which the site will be safely evacuated before or during the course of a base flood.

Section 8.03 Application Review Procedures

Upon receipt of an application for a Special Permit by the [Name of Municipality] the following procedures shall apply in addition to those of **Article IX**:

- A. Within three (3) working days following receipt of the application, a complete copy of the application and all accompanying documentation shall be forwarded to the County Planning Commission by registered or certified mail for its review and recommendations. Copies of the application shall also be forwarded to the [Name of Municipality] Planning commission and [Name of Municipality] engineer for review and comment.
- B. If an application is received that is incomplete, the [Name of Municipality] shall notify the applicant in writing, stating in what respect the application is deficient.
- C. If the [Name of Municipality] decides to disapprove an application, it shall notify the applicant, in writing, of the reasons for the disapproval.

Section 9.01 Designation of the Floodplain Administrator
FEMA requires that every municipality in its program designate a floodplain administrator. This does not necessarily mean a ‘new hire’ in the municipality. The building permit officer, zoning officer, code inspector or other existing staff can serve in this position. Whoever is currently reviewing plans to determine compliance with current floodplain regulations can continue to do so as the Floodplain Administrator.

Article IX:FC11

9.01:FC12

- D. If the [Name of Municipality] approves an application, it shall file written notification, together with the application and all pertinent information, with the Department of Community and Economic Development, by registered or certified mail, within five (5) working days after the date of approval.
- E. Before issuing the Special Permit, the [Name of Municipality] shall allow the Department of Community and Economic Development thirty (30) days, after receipt of the notification by the Department, to review the application and decision made by the [Name of Municipality].
- F. If the [Name of Municipality] does not receive any communication from the Department of Community and Economic Development during the thirty (30) day review period, it may issue a Special Permit to the applicant.
- G. If the Department of Community and Economic Development should decide to disapprove an application, it shall notify the [Name of Municipality] and the applicant, in writing, of the reasons for the disapproval, and the [Name of Municipality] shall not issue the Special Permit.

Section 8.04 Special Technical Requirements

- A. In addition to the requirements of Article VII of this Ordinance, the following minimum requirements shall also apply to any proposed development requiring a Special Permit. If there is any conflict between any of the following requirements and those in **Article VII** of this Ordinance or in any other code, ordinance, or regulation, the more restrictive provision shall apply.
- B. No application for a Special Permit shall be approved unless it can be determined that the structure or activity will be located, constructed and maintained in a manner which will:
 - 1. Fully protect the health and safety of the general public and any occupants of the structure. At a minimum, all new structures shall be designed, located, and constructed so that:
 - a. the structure will survive inundation by waters of the base flood elevation without any lateral movement or damage to either the structure itself, or to any of its equipment or contents below the BFE.
 - b. the lowest floor (including basement) will be elevated to at least one and one half (1 ½) feet above the Base Flood Elevation.
 - c. the occupants of the structure can remain inside for an indefinite period of time and be safely evacuated at any time during the base flood elevation.
 - 2. Prevent any significant possibility of pollution, increased flood levels or flows, or debris endangering life and property.
- C. All hydrologic and hydraulic analyses shall be undertaken only by professional engineers or others of demonstrated qualifications, who shall certify that the technical methods used correctly reflect currently accepted technical concepts. Studies, analyses, computations, etc. shall be submitted in sufficient detail to allow a thorough technical review by the [Name of Municipality] and the Department of Community and Economic Development.

Article IX Administration

Section 9.01 Designation of the Floodplain Administrator

The [Building Permit Officer, Zoning Officer, Municipal Manager, etc.] within the [Office, Department, etc.] is hereby appointed to administer and enforce this ordinance and is referred to herein as the Floodplain Administrator.

Section 9.02 Permits Required

A Permit shall be required before any construction or development is undertaken within the Floodplain Conservation District. In the case of a proposed hospital, nursing home, jail, prison, or manufactured home park, the permit referred to here would be the Special Permit of Article VIII.

Section 9.03 Duties and Responsibilities of the Floodplain Administrator

- A. The Floodplain Administrator shall issue a Permit only after it has been determined that the proposed work to be undertaken will be in conformance with the requirements of this and all other applicable codes and ordinances.
- B. Prior to the issuance of any permit, the Floodplain Administrator shall review the application for the permit to determine if all other necessary government permits required by state and federal laws have been obtained, such as those required by the Pennsylvania Sewage Facilities Act (Act 1966-537, as amended); the Pennsylvania Dam Safety and Encroachments Act (Act 1978-325, as amended); the Pennsylvania Clean Streams Act (Act 1937-394, as amended); and the U.S. Clean Water Act, Section 404, 33, U.S.C. 1344. No permit shall be issued until this determination has been made.
- C. In the case of existing structures, prior to the issuance of any Development/Permit, the Floodplain Administrator shall review the history of repairs to the subject building, so that any repetitive loss issues can be addressed before the permit is issued.
- D. During the construction period, the Floodplain Administrator or other authorized official shall inspect the premises to determine that the work is progressing in compliance with the information provided on the permit application and with all applicable municipal laws and ordinances. The Floodplain Administrator shall make as many inspections during and upon completion of the work as are necessary.
- E. In the discharge of his/her duties, the Floodplain Administrator shall have the authority to enter any building, structure, premises or development in the Floodplain Conservation District, upon presentation of proper credentials, at any reasonable hour to enforce the provisions of this ordinance.
- F. In the event the Floodplain Administrator discovers that the work does not comply with the permit application or any applicable laws and ordinances, or that there has been a false statement or

9.02:FC16

Section 9.02 Permits Required

This section does not necessarily require anew permit process. The permit referred to could be an existing municipal permit (except in cases where a Special Permit is required, see Article VIII). A municipality may develop a new permit procedure and form, or simply state in the plan approval letter that the letter serves as the development permit pertaining to the floodplain ordinance.



During permit review, the Floodplain Administrator should consider past flooding events and the history of repairs

9.03B:FC117

9.03G:FC23



A permit must be granted before construction can begin

9.04B.1:FC18a, 19

9.04B.2:FC18b

9.04B.3:FC18c, FC36

9.04B.4:FC19a

9.04B.5:FC19b

9.04B.7:FC19d

misrepresentation by any applicant, the Floodplain Administrator shall revoke the Permit and report such fact to the [Board, Council, etc.] for whatever action it considers necessary.

- G. The Floodplain Administrator shall maintain **in perpetuity** all records associated with the requirements of this ordinance including, but not limited to, permitting, inspection and enforcement.
- H. The Floodplain Administrator shall consider the requirements of the 34 PA Code and the 2009 IBC and the 2009 IRC or latest revisions thereof.

Section 9.04 Application Procedures and Requirements

- A. Application for such a Permit shall be made, in writing, to the Floodplain Administrator on forms supplied by the [Name of Municipality]. Such application shall contain the following:
 - 1. Name and address of applicant.
 - 2. Name and address of owner of land on which proposed construction is to occur.
 - 3. Name and address of contractor.
 - 4. Site location including address.
 - 5. Listing of other permits or variances required.
 - 6. Brief description of proposed work and estimated cost, including a breakout of flood-related cost and the market value of the building before the flood damage occurred where appropriate.
- B. If any proposed construction or development is located entirely or partially within any Floodplain Conservation District, applicants for Permits shall provide all the necessary information in sufficient detail and clarity to enable the Floodplain Administrator to determine that:
 - 1. all such proposals are consistent with the need to minimize flood damage and conform with the requirements of this and all other applicable codes and ordinances;
 - 2. all utilities and facilities, such as sewer, gas, electrical and water systems are located and constructed to minimize or eliminate flood damage; and
 - 3. adequate drainage is provided so as to reduce exposure to flood hazards.
 - 4. structures will be anchored to prevent floatation, collapse, or lateral movement.
 - 5. building materials are flood-resistant.
 - 6. appropriate practices that minimize flood damage have been used.
 - 7. electrical, heating, ventilation, plumbing, air conditioning equipment, and other service facilities have been designed and/or located to prevent water entry or accumulation.

- C. Applicants shall file the following minimum information plus any other pertinent information as may be required by the Floodplain Administrator to make the above determination:
1. A completed Permit Application Form.
 2. A plan of the entire site, clearly and legibly drawn at a scale of one (1) inch being equal to one hundred (100) feet or less, showing the following:
 - a. north arrow, scale, and date;
 - b. topographic contour lines, if available;
 - c. the location of all existing and proposed buildings, structures, and other improvements, including the location of any existing or proposed subdivision and development;
 - d. the location of all existing streets, drives, and other access ways; and
 - e. the location of any existing bodies of water or watercourses, the Floodplain Conservation District, and, if available, information pertaining to the floodway, and the flow of water including direction and velocities.
 3. Plans of all proposed buildings, structures and other improvements, drawn at a scale of one (1) inch being equal to one hundred (100) feet or less showing the following:
 - a. the proposed lowest floor elevation of any proposed building based upon North American Vertical Datum of 1988;
 - b. the elevation of the base flood;
 - c. supplemental information as may be necessary under 34 PA Code, the 2006 IBC or the 2006 IRC.
 4. The following data and documentation:
 - a. detailed information concerning any proposed floodproofing measures and corresponding elevations.
 - b. if available, information concerning flood depths, pressures, velocities, impact and uplift forces and other factors associated with a base flood elevation; and detailed information concerning any proposed floodproofing measures and corresponding elevations.
 - c. documentation, certified by a registered professional engineer or architect, to show that the cumulative effect of any proposed development within an AE Area/District without floodway when combined with all other existing and anticipated development, will not increase the base flood elevation more than one (1) foot at any point.
 - d. a document, certified by a registered professional engineer or architect, which states that the proposed construction or development has been adequately designed to withstand the pressures, velocities, impact and uplift forces associated with the base flood elevation. Such



Water bodies, such as these wetlands, should be noted on the submitted plan

statement shall include a description of the type and extent of floodproofing measures which have been incorporated into the design of the structure and/or the development.

- e. detailed information needed to determine compliance with Section 7.04 F., Storage, and Section 7.03, Development Which May Endanger Human Life, including:
 - i. the amount, location and purpose of any materials or substances referred to in Sections 7.03. and 7.04 F which are intended to be used, produced, stored or otherwise maintained on site.
 - ii. a description of the safeguards incorporated into the design of the proposed structure to prevent leaks or spills of the dangerous materials or substances listed in Section 7.03 during a base flood.
 - e. the appropriate component of the Department of Environmental Protection's "Planning Module for Land Development."
 - f. where any excavation or grading is proposed, a plan meeting the requirements of the Department of Environmental Protection, to implement and maintain erosion and sedimentation control.
5. Applications for Permits shall be accompanied by a fee, payable to the municipality based upon the estimated cost of the proposed construction as determined by the Floodplain Administration.

Section 9.05 Review by County Conservation District

A copy of all applications and plans for any proposed construction or development in any Floodplain Conservation District to be considered for approval shall be submitted by the Floodplain Administrator to the County Conservation District for review and comment prior to the issuance of a Permit. The recommendations of the Conservation District shall be considered by the Floodplain Administrator for possible incorporation into the proposed plan.

Section 9.06 Review of Application by Others

A copy of all plans and applications for any proposed construction or development in any Floodplain Conservation District to be considered for approval may be submitted by the Floodplain Administrator to any other appropriate agencies and/or individuals (e.g. planning commission, municipal engineer, etc.) for review and comment.

Section 9.07 Changes

After the issuance of a Permit by the Floodplain Administrator, no changes of any kind shall be made to the application, permit or any of the plans, specifications or other documents submitted with the application without the written consent or approval of the Floodplain Administrator. Requests for any such change shall be in writing, and shall be submitted by the applicant to Floodplain Administrator for consideration.

Section 9.08 Placards

In addition to the Permit, the Floodplain Administrator shall issue a placard which shall be displayed on the premises during the time construction is in progress. This placard shall show the number of the Permit the date of its issuance and be signed by the Floodplain Administrator.

Section 9.09 Start of Construction

Work on the proposed construction shall begin within 180 days after the date of issuance and shall be completed within twelve (12) months after the date of issuance of the Permit or the permit shall expire unless a time extension is granted, in writing, by the Floodplain Administrator. The term, 'start of construction' shall be understood as defined in Section 3.02 of this ordinance.

Time extensions shall be granted only if a written request is submitted by the applicant, which sets forth sufficient and reasonable cause for the Floodplain Administrator to approve such a request **and the original permit is compliant with the ordinance & FIRM/FIS in effect at the time the extension is granted.**

Section 9.10 Enforcement

A. Notices

Whenever the Floodplain Administrator or other authorized municipal representative determines that there are reasonable grounds to believe that there has been a violation of any provisions of this Ordinance, or of any regulations adopted pursuant thereto, the Floodplain Administrator shall give notice of such alleged violation as hereinafter provided. Such notice shall:

1. be in writing;
2. include a statement of the reasons for its issuance;
3. allow a reasonable time not to exceed a period of thirty (30) days for the performance of any act it requires;
4. be served upon the property owner or his agent as the case may require; provided, however, that such notice or order shall be deemed to have been properly served upon such owner or agent when a copy thereof has been served with such notice by any other method authorized or

9.10:FC4

The penalties section can be revised to conform to the municipality's current penalties policy, or, if a penalties section exists elsewhere in the zoning ordinance, that section can be referenced here.

Some municipalities do not have an Enactment section within each ordinance they adopt, opting instead to pass a Resolution of Adoption. Either option is permissible. In either case, the municipality must indicate to FEMA that a floodplain ordinance with the required elements has been adopted by the municipality in order to remain in good standing within the NFIP program. The date of adoption must be included in the Adoption Section or Resolution of Adoption, in order to satisfy FEMA's requirements.

required by the laws of this State;

5. contain an outline of remedial action which, if taken, will effect compliance with the provisions of this Ordinance.

B. Penalties

Any person who fails to comply with any or all of the requirements or provisions of this Ordinance or who fails or refuses to comply with any notice, order of direction of the Floodplain Administrator or any other authorized employee of the municipality shall pay a fine to [Name of Municipality], of not less than (Figure to be Set by the Municipality) nor more than (Figure to be Set by the Municipality) plus costs of prosecution. In addition to the above penalties all other actions are hereby reserved including an action in equity for the proper enforcement of this Ordinance. The imposition of a fine or penalty for any violation of, or noncompliance with, this Ordinance shall not excuse the violation or noncompliance or permit it to continue and all such persons shall be required to correct or remedy such violations and noncompliance within a reasonable time. Any development initiated or any structure or building constructed, reconstructed, enlarged, altered, or relocated, in noncompliance with this Ordinance may be declared by the [Board, Council, etc.] to be a public nuisance and abatable as such.

Section 9.11 Appeals

- A. Any person aggrieved by any action or decision of the Floodplain Administrator concerning the administration of the provisions of this Ordinance, may appeal to the Zoning Hearing Board. Such appeal must be filed, in writing, within thirty (30) days after the decision, determination or action of the Floodplain Administrator.
- B. Upon receipt of such appeal the Zoning Hearing Board shall consider the appeal in accordance with the Municipal Planning Code and any other local ordinance.
- C. Any person aggrieved by any decision of the Zoning Hearing Board may seek relief therefrom by appeal to court, as provided by the laws of this State including the Pennsylvania Flood Plain Management Act.

Article X Enactment

Section 10.01 Adoption

This Ordinance (ordinance number) shall be effective on [effective date] and shall remain in force until modified, amended or rescinded by [Name of Municipality], County], Pennsylvania.

ENACTED AND ADOPTED by the [Board, Council, etc.] this [day] day of [month], [year].

ATTEST: [Board, Council, etc.] of the [Name of Municipality]

Article X:FC15

By:

[Name of Municipality] Secretary [Board, Council, etc.] President

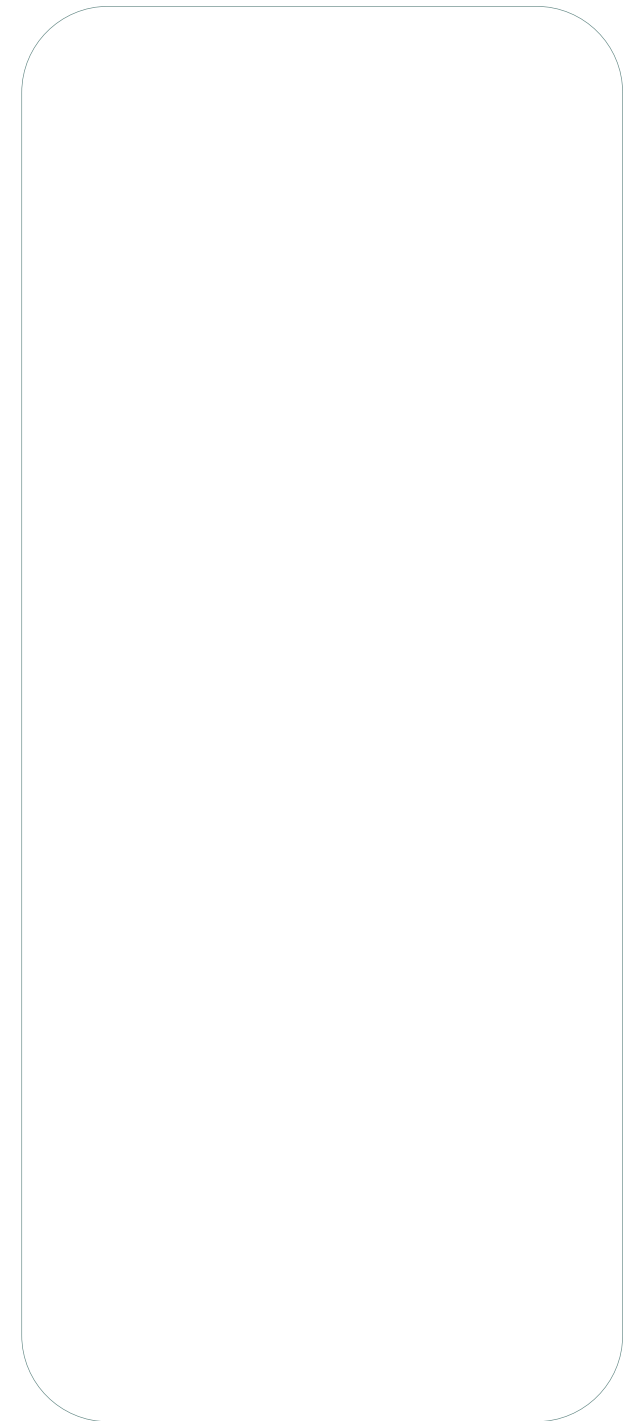
APPROVED, this [day] day of [month], [year], by [Municipal Official] [Name of Municipality]

ATTEST:

[Municipal Official]

[Name of Municipality]

[Secretary]





Montgomery County Planning Commission
Montgomery County Court House
PO Box 311, Norristown, PA19404

www.planning.montcopa.org